Key to help screen *Tomicus piniperda* (*L.*) from other North American Scolytidae (Coleoptera)

NA-TP-06-93

The following key was designed so that entomologists with little taxonomic experience in bark beetles (Scolytidae) could recognize *T. piniperda*. Help notes and a glossary follow the key. Although this will produce accurate identifications, it should be emphasized that all *T. piniperda* determinations need to be confirmed by a specialist. Such caution is important because the ever changing Nearctic scolytid fauna may someday include genera which resemble *T. piniperda*.

1. Basal margin of elytra armed (Figure 1) ——— 2
1'. Basal margin of elytra unarmed ——— **NOT** *T. piniperda*

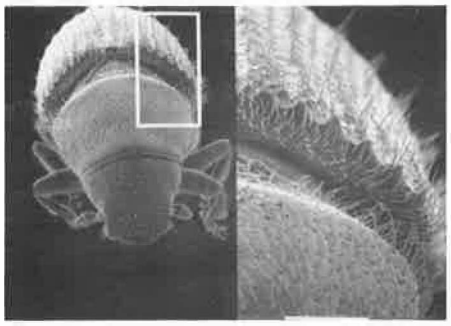

Figure 1.

2. Eyes not divided or emarginate (Figure 2) ——— 3
2'. Eyes divided or emarginate ——— **NOT** *T. piniperda*

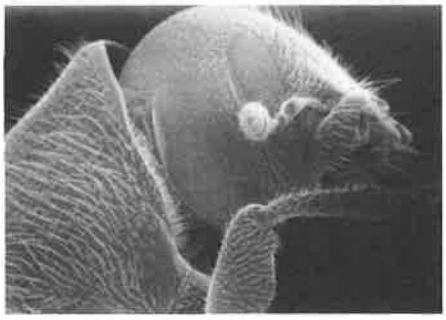

Figure 2.

3. Anterior lateral portions of pronotum with setiferous punctures (Figure 3) ——— 4
3'. Anterior lateral portions of pronotum asperate ——— **NOT** *T. piniperda*

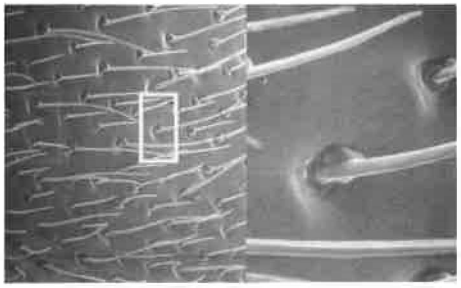

Figure 3.

4. Funicle with 6 segments (Figures 4 and 5; numbered in Figure 5; **S** = scape, **C** = club) 5
4'. Funicle with 5 or 7 segments _____ **NOT** *T. piniperda*

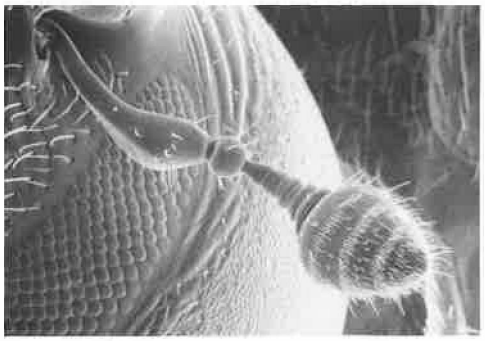

Figure 4.

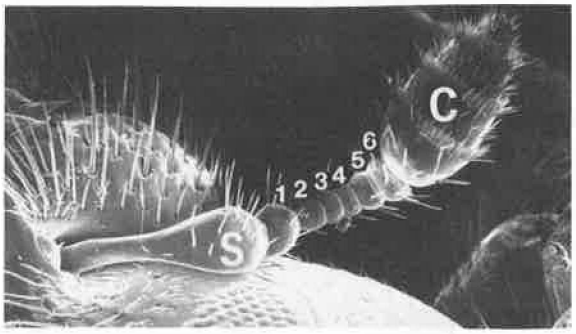

Figure 5.

5. Second row of setae continues uninterrupted through the declivity __ **NOT** *T. piniperda*
5'. Second row of setae sparse or absent on the declivity (Figures 6, 7) _____ *T. piniperda*

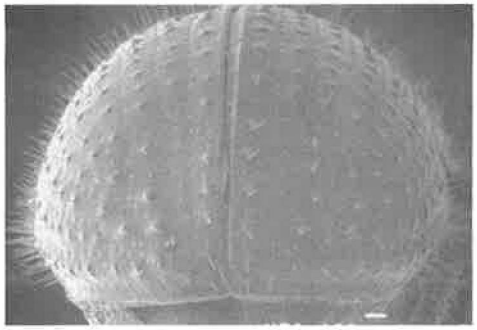

Figure 6.

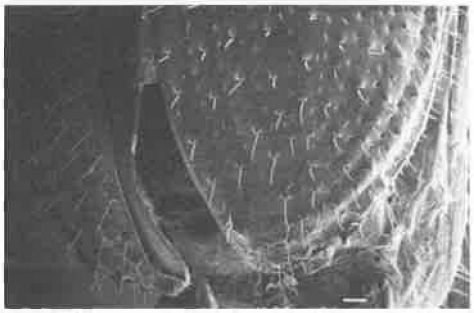

Figure 7.

Key prepared by

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Help notes to *Tomicus piniperda* key

Couplet 1:

It is easier to see armed elytra when the beetle is viewed "head on." Common scolytids with unarmed elytra are *Ips*, *Orthotomicus*, *Scolytus*, and *Xyleborus*.

Couplet 3:

For an example of an asperate pronotum, see Wood 1982; page 698, *Ips calligraphus*, figure 169-1.

Couplet 4:

Don't count the scape or the club. Only the number of segments in the funicle is important. A common genus of scolytids with a 5-segmented funicle is *Dendroctonus* while *Hylurgopinus* has a 7-segmented funicle.

Couplet 5:

Some scolytids have a row of setae on the elytra between rows of punctures or striae. On *T. piniperda*, the second row of setae from the midline (suture) usually does not continue onto the declivity or is represented on the declivity by only a few scattered hairs. Do not confuse short hairs on the declivity of *T. piniperda* with major setae. When the taxonomic literature describes the second interval as bare, it ignores any short hairs which may be present. Unlike major setae, the short hairs are not in rows (see Figure 6). The best way to examine the declivity is with oblique lighting. It is usually necessary to rotate the specimen in order to search for the smooth area. Evaluating the declivity is a difficult character for the non-specialist; it may be necessary to examine a reference specimen of *T. piniperda* first for practice.

Important notes:

Some females of *T. piniperda* (5-10%) have a more continuous second row of setae on the declivity and might consequently key incorrectly in couplet 5 (S.L. Wood, pers. comm.). Any scolytids that key past couplet 4 in this key should be considered as suspect exotic species.

Description of *T. piniperda* adult:

Size 3.5 to 4.8 mm

Color light brown to black depending on maturity. A bicolored form exists where the elytra are reddish brown while the head and thorax are black (Berg, unpublished PPQ notes and specimens in APHIS Port Collection, Baltimore, Maryland).

Glossary

Armed elytra
elytra that have a series of raised semicircular projections (Figure 1).

Asperate pronotum
a pronotum roughened with blunt or pointed grainlike elevations.

Club
enlarged apical segments of the antenna (segments 8-11 on T. piniperda.

Declivity
the portion of the elytra that slopes downward at the rear end of the beetle above the anus.

Elytra
the hardened front wing covers of beetles.

Funicle
that portion of the antenna between the scape and the club (segments 2-7 in *T. piniperda*).

Scape
the elongate first segment of the antenna.

Setiferous punctures
a pit in the cuticle (skin) with a hair in the center.

Non-target information which may help future survey efforts.

1. Other scolytids found in pine shoots in the northeastern USA with *T. piniperda* include:
   Pityophthorus spp. (3 species)
   Orthotomicus caelatus

2. Other insects found in pine shoots during the *T. piniperda* survey in the Northeastern USA;
   Dioryctria sp. (Lepidoptera: Pyralidae)
   Pissodes spp. (Coleoptera: Curculionidae)

3. Native scolytids that resemble *T. piniperda* include:
   Hylastes salebrosus
   Hylurgops spp. (various species)

4. Scolytids which do not yet occur in the USA that resemble *T. piniperda* are:
   Tomicus spp., for example *T. minor*
   Hylurgus ligniperda

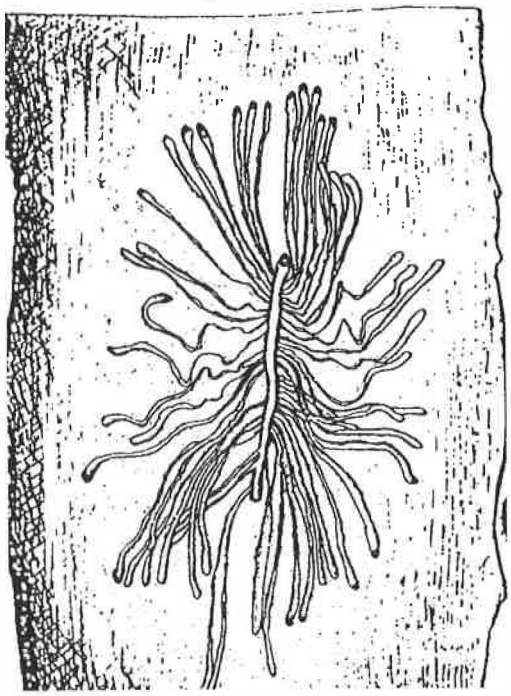

Figure 8

Typical bark beetle gallery of *T. piniperda* showing a vertical egg gallery constructed by a pair of adult beetles along with radiating larval galleries (USDA Coop. Econ. Ins. Rpt., 1972).

Acknowledgements

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